

ATTACHMENT A

Cleaned-Up Version of Amended Claims (as of 6/28/01)

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1. ~~(ONCE AMENDED)~~ A system for storing equation coefficients in a color display device during a color display device manufacturing process, said equation coefficients to represent an input-output color characteristic of the color display device, said system comprising:

a signal generator for generating an output signal that can be used by said color display device to produce a predetermined pattern on a screen of said color display device;

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a general purpose computer coupled to said signal generator and said color display device, the general purpose computer providing during the color display device manufacturing process a plurality of first outputs to said signal generator such that said signal generator incrementally changes said output signal from a first extreme to a second extreme such that a first color can be displayed on said color display device in said predetermined pattern, said single color being displayed incrementally from a first brightness level to a second brightness level;

a photometer device positioned to measure the incremental brightness levels that can be displayed on said color display device, said photometer providing a brightness data for each incremental brightness level to said general purpose computer;

said general purpose computer correlates said first outputs with said brightness data to further calculate a plurality of coefficients that represent the signal input-to-first color output relationship of said color display device; and

said general purpose computer stores said plurality of coefficients in a memory of said color display device during the color display device manufacturing process.

2. The system for computing of claim 1, wherein said general purpose computer further can provide said plurality of coefficients to said color display device.

3. The system for computing of claim 1, wherein said coefficients are for a polynomial equation that represents the signal input-to-first color output relationship of said color display device.

4. The system for computing of claim 1, wherein said plurality of coefficients can be communicated to said color display device for storage in a data storage device associated with said color display device.

5. The system for computing of claim 1, wherein said plurality of coefficients can be utilized in a third order polynomial equation which predicts the brightness of said first color to within 0.3 foot-lamberts for each input signal for said color display device.

6. The system for computing of claim 1, wherein said first color is at least one of red, green, and blue.

7. The system for computing of claim 1 wherein said color display device can be at least one of a VGA monitor, a MultiSync monitor, a flat panel NCD display, a flat panel SPU display, a flat panel LCD display, a reflective LCD display, and a FED display device.

Sub D2
8. ~~(ONCE AMENDED) A method of calculating a mathematical representation~~ of the signal input-to-color brightness output relationship of a color display monitor during a display device manufacturing process, said method comprising the steps of:

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providing input signals having predetermined incremental changes between said input signals to a color display device during the display device manufacturing process such that said color display device produces a predetermined pattern on the color display device's screen;

measuring a brightness of at least a portion of said predetermined pattern at each incremental change of said input signal and providing said measured brightness as brightness data to a general purpose computer;

correlating said input signals with said brightness data in said general purpose computer;

calculating coefficients of a mathematical representation, in said general purpose computer, of said correlated input signals to said brightness data;

storing during the display device manufacturing process said coefficients in a ~~memory device associated with said color display device.~~

9. The method of claim 8, wherein said input signals represent at least one predetermined color that can be displayed on said color display device.

10. The method of claim 8, wherein prior to the step of providing a step of warming up said color display device is performed.

11. The method of claim 8, wherein said memory device associated with said color display device is a DDC memory.

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12. ~~(ONCE AMENDED)~~ A color display device adapted to provide during a color display device manufacturing process a plurality of coefficients to a color display device driver circuit, said coefficients being related to a signal-input-to-brightness-output transfer function of said color display device, said color display device comprising:

input/output circuitry for connecting said color display device to a general purpose computer;

a display screen in communication with said input/output circuitry;

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a data storage device, associated with the display screen, for storing, at least, a plurality of coefficients for a signal-input-to-brightness-output transfer function, said plurality of coefficients being calculated after incremental signals are provided to said color display device, via said input/output circuit, such that a predetermined pattern is displayed on said display screen, a brightness data of said predetermined pattern is measured and correlated with each said incremental signal, a transfer function, having coefficients, is calculated based on said correlation of said incremental signals and said brightness data, said coefficients then being stored in said data storage device, said coefficients being available to a color display device driver circuit when said color display device is connected to a general purpose computer.

13. The color display device of claim 12, wherein said transfer function is a polynomial equation.

14. The color display device of claim 12, wherein said transfer function is a third order polynomial equation.

15. The color display device of claim 12, wherein said color display device is a screen utilized by at least one of a personal computer, laptop computer, and computer monitor.

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16. ~~(ONCE AMENDED)~~ A computer system comprising:

a general purpose computer, said general purpose computer comprising a color display device driver;

a color display device connected to said general purpose computer, said color display device comprising a data storage device containing a mathematical representation of an input-output transfer characteristic for the color display device stored during a color display device manufacturing process, said mathematical representation provided to said color display device driver in order to aide the standardization of a color brightness.

17. The computer system of claim 16, wherein said data comprises coefficients to a polynomial transfer function that describes a relationship between an input signal to said color display device and a color brightness on a screen of said color display device.

18. The computer system of claim 16, wherein said data storage device is memory device.

19. The computer system of claim 16, wherein said memory device is a DDC memory associated said color display device.

20. A method of determining an input-output transfer characteristic for a color display device, the method comprising the steps of:

displaying a first brightness output which is a known level of a maximum brightness of the color display device;

receiving an input signal representing a second brightness output which varies from a minimum brightness to a maximum brightness of the color display device; and

correlating the first brightness output with the input signal into a mathematical representation of an input-output transfer characteristic of the color display device.

21. The method of claim 20, further comprising the step of:
storing the mathematical representation in a memory device.

22. The method of claim 20, further comprising recursively repeating displaying a first brightness output, receiving an input signal and correlating steps for each color, green, red and blue.

23. The method of claim 20, wherein the first brightness output is comprised of a first number of pixels being illuminated and a second number of pixels not being illuminated.

24. The method of claim 20, wherein the mathematical representation comprises a polynomial equation.

25. A system for determining a mathematical representation of an input-output characteristic of a color display device for a computer system over an operating range of the color display device, the system comprising:

a computer;

a color display device coupled to the computer;

an output of the color display device representing a known level of a maximum brightness output of the color display device;

an input signal to the color display device representing a varying color brightness output; and

wherein the computer correlates the output of the color display device with the input signal into a mathematical representation of the input-output transfer characteristic of the color display device.

26. The system of claim 25, further comprising:
a memory device to store the mathematical representation.

27. The system of claim 25, wherein correlation of the output with the input signal is performed for each color, green, red and blue.

28. The system of claim 25, wherein the output of the color display device is comprised of a first number of pixels being illuminated and a second number of pixels not being illuminated.

29. The system of claim 25, wherein the mathematical representation comprises a polynomial equation.

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30. ~~(ONCE AMENDED) A method of color management for a color display device, the method comprising the steps of:~~

~~generating during a color display device manufacturing process a mathematical model of a brightness transfer function describing a relationship between color input signals to a color display device and color brightness output of the color display device; and~~

~~storing a representation of the mathematical model in a memory device associated with the color display device~~

31. The method of claim 30, wherein the brightness transfer function comprises a polynomial transfer function.

32. The method of claim 30, wherein the memory device is in the color display device.

33. (ONCE AMENDED) A color management system for a color display device,

comprising:

a means for generating during a color display device manufacturing process a mathematical model of a brightness transfer function describing a relationship between color input signals to a color display device and color brightness output of the color display device; and

a means for storing a representation of the mathematical model in the color display device.

34. The system of claim 33, wherein the brightness transfer function comprises a polynomial transfer function.